

What is claimed is

1           1. A compact self-ballasted fluorescent lamp,  
2    comprising:

3            an arc tube formed by a glass tube double-spirally wound  
4    from a middle to both ends thereof around a predetermined  
5    axis; and

6            a cylindrical holding member having an end wall where  
7    a pair of insertion openings are formed, and holding the arc  
8    tube in a state where both end parts of the glass tube are  
9    inserted in the insertion openings,

10          wherein a pitch of (a) each end part and (b) an adjacent  
11    spiral part in a direction of the axis is larger than a pitch  
12    of other adjacent spiral parts, to widen a gap between each  
13    end part and the adjacent spiral part, and

14          a minimum distance between (a) a first area that is on  
15    an outer surface of a spiral part adjacent to one of the ends  
16    in the direction of the axis and (b) a second area that is  
17    on a surface of the end wall and that faces the first area,  
18    is in a range of 1.5 to 4.0 mm inclusive.

1           2. The compact self-ballasted fluorescent lamp of Claim  
2    1, wherein

3            a winding pitch of the glass tube is changed to enlarge  
4    at such a position back from each end by 60 to 120° inclusive

5 with respect to the axis, as viewed in the direction of the  
6 axis.

1 3. The compact self-ballasted fluorescent lamp of Claim  
2 1, wherein

3 a gap between the other adjacent spiral parts is in a  
4 range of 1 to 3 mm inclusive, and

5 a distance between (a) a first point that is on each  
6 end and (b) a second point that faces the first point and  
7 that is on an outer surface of an adjacent spiral part in  
8 the direction of the axis, is in a range of 3 to 6 mm inclusive.

1 4. The compact self-ballasted fluorescent lamp of Claim  
2 1, further comprising:

3 a globe covering the arc tube; and

4 a case that is fit to cover a circumferential wall of  
5 the holding member,

6 wherein a gap is formed between the circumferential wall  
7 of the holding member and the case, and the globe is fixed  
8 in a state where an opening end thereof is fit in the gap.

1 5. The compact self-ballasted fluorescent lamp of Claim  
2 4, wherein

3 wherein the arc tube is thermally connected to the globe  
4 via a heat conductive medium, at a coolest position of the

5 arc tube during lighting, or a position in a vicinity of the  
6 coolest position.

1 6. The compact self-ballasted fluorescent lamp of Claim  
2 1, wherein

3 an inner diameter of the glass tube is in a range of  
4 5 to 9 mm inclusive.

1 7. The compact self-ballasted fluorescent lamp of Claim  
2 1, wherein

3 an annular outer diameter of the double-spiral arc tube  
4 is in a range of 30 to 40 mm inclusive.

1 8. A compact self-ballasted fluorescent lamp,  
2 comprising:

3 an arc tube formed by a glass tube double-spirally wound  
4 from a middle to both ends thereof around a predetermined  
5 axis; and

6 a cylindrical holding member having an end wall on which  
7 a pair of tube-holding structures are provided for holding  
8 the arc tube in a state where both end parts of the glass  
9 tube are inserted in and held by the tube-holding structures,  
10 wherein a pitch of (a) each end part and (b) an adjacent  
11 spiral part in a direction of the axis is larger than a pitch  
12 of other adjacent spiral parts, to widen a gap between each

13 end part and the adjacent spiral part, and  
14 a distance between (a) a first point that is at a middle  
15 of an area sandwiched between the pair of tube-holding  
16 structures in a circumferential direction of the end wall  
17 as viewed in the direction of the axis and (b) a second point  
18 that is on an outer surface of a spiral part positioned outward  
19 with respect to the holding member and facing the first point,  
20 is in a range of 1.5 to 4.0 mm inclusive.

1 9. The compact self-ballasted fluorescent lamp of Claim  
2 8, wherein

3 a winding pitch of the glass tube is changed to enlarge  
4 at such a position back from each end by 60 to 120° inclusive  
5 with respect to the axis, as viewed in the direction of the  
6 axis.

1 10. The compact self-ballasted fluorescent lamp of Claim  
2 8, wherein

3 a gap between the other adjacent spiral parts is in a  
4 range of 1 to 3 mm inclusive, and

5 a distance between (a) a first point that is on each  
6 end and (b) a second point that faces the first point and  
7 that is on an outer surface of an adjacent spiral part in  
8 the direction of the axis, is in a range of 3 to 6 mm inclusive.

1           11. The compact self-ballasted fluorescent lamp of Claim  
2   8, further comprising

3           a case that is fit to cover a circumferential wall of  
4   the holding member,

5           wherein the holding member has, at the circumferential  
6   wall, an engagement part that is engaged at an inner surface  
7   of the case, the engagement part being at such a position  
8   corresponding to the middle of the area sandwiched between  
9   the pair of tube-holding structures.

1           12. The compact self-ballasted fluorescent lamp of Claim  
2   8, further comprising

3           a globe covering the arc tube; and

4           a case that is fit to cover a circumferential wall of  
5   the holding member,

6           wherein a gap is formed between the circumferential wall  
7   of the holding member and the case, and the globe is fixed  
8   in a state where an opening end thereof is fit in the gap.

1           13. The compact self-ballasted fluorescent lamp of Claim  
2   12, wherein

3           the arc tube is thermally connected to the globe via  
4   a heat conductive medium, at a coolest position of the arc  
5   tube during lighting, or a position in a vicinity of the coolest  
6   position.

1           14. The compact self-ballasted fluorescent lamp of Claim  
2    8, wherein  
3           an inner diameter of the glass tube is in a range of  
4    5 to 9 mm inclusive.

1           15. The compact self-ballasted fluorescent lamp of Claim  
2    8, wherein  
3           an annular outer diameter of the double-spiral arc tube  
4    is in a range of 30 to 40 mm inclusive.